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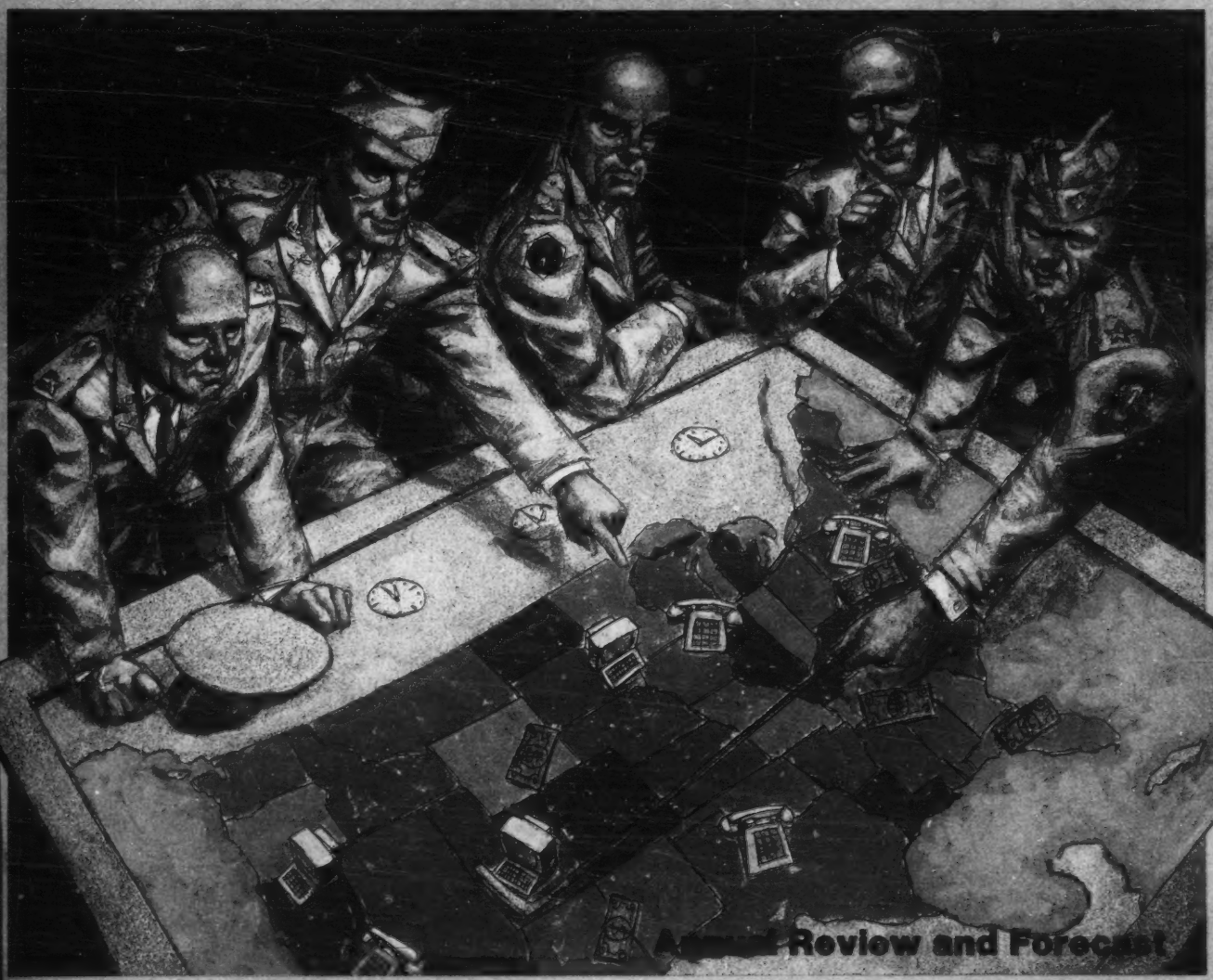
AN INTERTEC PUBLICATION DEC. 18, 1989 INTEGRATING VOICE & DATA COMMUNICATIONS $3



SPENDING STRATEGIES FOR THE 1990s

The amount hasn't changed much in the last year, but companies will be spending differently

BOCs OVERCHARGED IXCs, FCC RULES

Both AT&T and MCI can seek refunds and damages

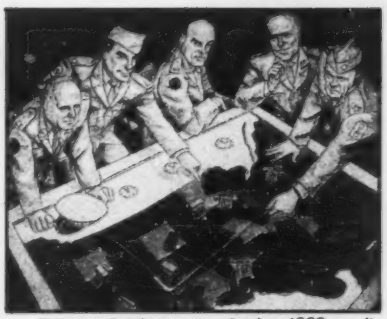
U.S. FIRMS SHARE U.K. PCN LICENSES

Pacific Telesis, U S West and others to offer new service

MONDAY, DECEMBER 18, 1989 Volume 217, No. 26

Telephony

INTEGRATING VOICE & DATA COMMUNICATIONS



Telecom leaders are reviewing 1989 results and preparing for the 1990s. Since their pocket change hasn't changed much from last year, LECs and IXCs will be plotting shrewd investments. Cover art by Alan Brunettin

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TELEPHONY (ISSN 0040-2656) is published weekly except semi-weekly the first week in July by Telephony Division, Intertec Publishing Corp., 55 E. Jackson Blvd., Chicago, IL 60604. **Postmaster:** Please send address changes to Telephony Subscription Dept. Intertec Publishing Corp., P.O. Box 12946, Overland Park, KS 66212. Second class postage paid at Chicago, IL, and at additional mailing offices. Single copies (payable in advance) U.S. $3.00 ea. Outside U.S. add $1.00 ea. Subscriptions: $35 one year. Outside U.S. $61 per year. Subscription rates apply to employees of operating telephone companies; telephone consultants; contractors; interconnect companies; specialized common carriers; military; government; associations; private communications users; schools; libraries. Change of address: include old address as well as new address. Attach issue label if possible. Allow 4 weeks for change to become effective. Copyright 1989 by Telephony Division, Intertec Publishing Corp. All rights reserved. Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by Telephony for libraries and other users registered with the Copyright Clearance Center (CCC) provided that the fee of $1.50 per page is paid directly to CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to publisher.

In My Opinion

What will 1990 bring?

The passing of a decade is a natural time for reflection. From the telecommunications industry's standpoint, however, it is difficult to sum up the 1980s.

So much happened in this turbulent 10-year period, and the many changes continue to reverberate through the industry. Only last week, the Federal Communications Commission took a landmark position on the basic issue of access charges levied against the interexchange carriers by local exchange carriers (see story on page 8). Those charges are themselves remnants of an era when the goal of universal service outweighed all else. The idea of cost-based pricing was anathema to that goal. In today's competitive market, subsidies and strategic pricing are increasingly inappropriate solutions.

The decade ahead will bring more changes, although it is unlikely that these changes will be as fundamental as the divestiture and deregulation forces of this decade.

Let's take one year at a time. What will 1990 bring to the public network? Here's an opinion—and something of a wish list, really—from one observer.

1990 will be the year that two long overdue technologies—ISDN and SS7—reach the marketplace in a meaningful way.

The integrated services digital network that will blossom will be more limited than originally foreseen, however. As it is tariffed by LECs, and the related customer premises equipment becomes more reasonably priced, ISDN will become a cost-efficient solution for medium-sized and smaller businesses. And while it won't offer the speed and flash of some existing data communications solutions, it eventually will provide a true international standard for voice and data that is within the financial reach of all market segments.

Signaling system 7 and services based on it will finally arrive in the local market, although still on a spotty basis. As automatic number identification-based services spread, LECs will fight more battles and have to devise some creative solutions concerning privacy issues. So far, I'd put my money on GTE Telephone Operations' approach, which provides a caller ID that isn't a telephone number.

Sonet will make a significant appearance in 1990, as Phase I equipment is deployed. Companies such as Bell Atlantic that are aggressively deploying Sonet gear say it already proves-in against existing asynchronous transport technology. If the current and future field trials prove them right, look for many more vendors to move quickly into this market. If, on the other hand, the promised upgrades to Phase II standards prove stickier than expected, look for a market slowdown.

Within the LECs, marketing and technology research will stop being distant cousins. The entire industry should learn from the experience of ISDN and work harder to translate technology into market applications.

The LECs also will attempt to get their operations support systems in shape to support diverse new services and markets.

The Bell regional holding companies will gain additional freedom from the Modified Final Judgment restrictions through congressional action, but will then face regulation by an FCC determined to make them toe the line.

Here at *Telephony*, we will continue to work harder to bring you news and feature material that addresses these and many other issues within this dynamic industry. Of all these predictions, that's the one of which I am most certain.

Happy holidays to all.

Carol Wilson

Telephony

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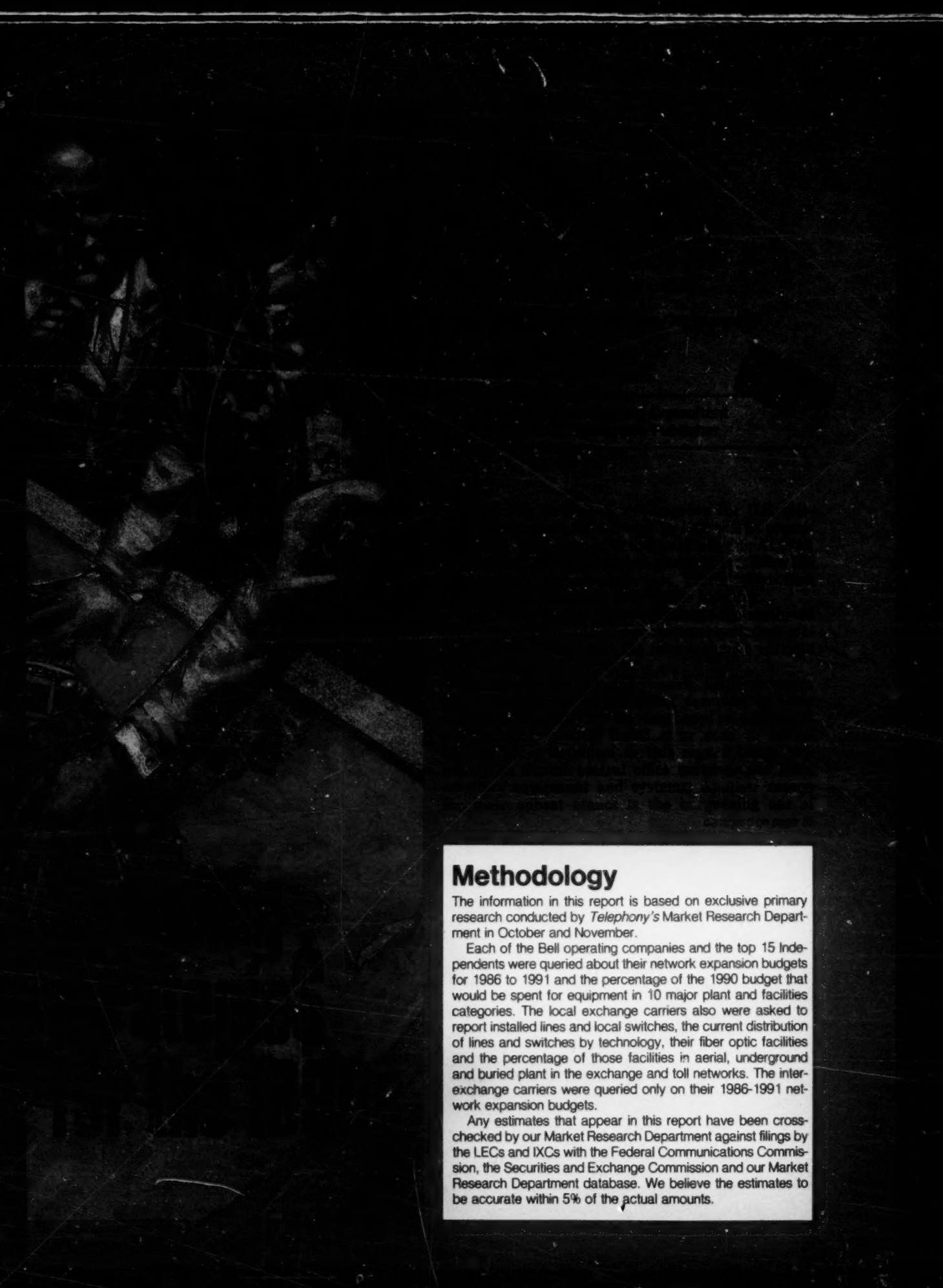


Methodology

The information in this report is based on exclusive primary research conducted by *Telephony's* Market Research Department in October and November.

Each of the Bell operating companies and the top 15 Independents were queried about their network expansion budgets for 1986 to 1991 and the percentage of the 1990 budget that would be spent for equipment in 10 major plant and facilities categories. The local exchange carriers also were asked to report installed lines and local switches, the current distribution of lines and switches by technology, their fiber optic facilities and the percentage of those facilities in aerial, underground and buried plant in the exchange and toll networks. The interexchange carriers were queried only on their 1986-1991 network expansion budgets.

Any estimates that appear in this report have been cross-checked by our Market Research Department against filings by the LECs and IXCs with the Federal Communications Commission, the Securities and Exchange Commission and our Market Research Department database. We believe the estimates to be accurate within 5% of the actual amounts.

Local Exchange Carriers
1986-1991 Network Expansion Budgets $000,000

	1986	1987	1988	1989	1990	1991	Ave 86-87	Ave 88-91
The Regionals								
Ameritech								
Illinois	653.5	590.8	590.7	611.4	620.0	620.0	622.2	610.5
Indiana	234.9	223.5	194.5	192.5	203.9	211.8	229.2	200.7
Michigan	525.0	514.0	485.5	501.0	515.0	520.0	519.5	505.4
Ohio	386.2	388.2	373.8	383.3	402.7	374.4	387.2	383.6
Wisconsin	194.8	165.5	179.7	180.0	180.0	174.1	180.2	178.5
Subtotal	1,994.4	1,882.0	1,824.2	1,868.2	1,921.6	1,900.3	1,938.2	1,878.6
Bell Atlantic*	2,268.0	2,330.0	2,435.0	2,500.0	2,515.0	2,49[illegible]	2,299.0	2,486.3*
BellSouth								
Southern	1,695.6	1,823.5	1,789.4	1,805.1	1,882.6	1,869.1	1,759.6	1,836.6
South Central**	1,121.8	1,125.9	1,142.2	1,179.4	1,162.0	1,038.8	1,123.9	1,130.6
Subtotal	2,817.4	2,949.4	2,931.6	2,984.5	3,044.6	2,907.9	2,883.4	2,967.2
Nynex								
New York*	1,319.0	1,432.0	1,492.1	1,470.0	1,450.0	1,420.0	1,375.5	1,458.0
New England*	739.0	846.0	958.0	940.0	910.0	890.0	792.5	924.5
Subtotal	2,058.0	2,278.0	2,450.1	2,410.0	2,360.0	2,310.0	2,168.0	2,382.5
Pacific Telesis								
Pacific Bell*	1,625.1	1,450.0	1,240.0	1,245.0	1,250.0	1,240.0	1,537.6	1,243.8
Nevada Bell*	16.4	25.6	26.0	26.0	27.0	26.5	21.0	26.4
Subtotal	1,641.5	1,475.6	1,266.0	1,271.0	1,277.0	1,266.5	1,558.6	1,270.1
SW Bell	1,876.0	1,407.0	1,107.0	1,300.0	1,450.0	1,500.0	1,641.5	1,339.3
U S West**	1,684.0	1,646.0	1,816.0	1,824.0	1,900.0	1,900.0	1,665.0	1,860.0
Top 15 Independents								
GTE	2,610.0	2,700.0	2,400.0	2,300.0	2,200.0	2,000.0	2,655.0	2,225.0
United	549.6	645.2	666.3	669.7	694.0	685.0	597.4	678.8
Contel	464.6	490.6	556.0	574.0	602.9	558.5	477.6	572.9
SNET	294.9	387.2	326.6	360.0	365.0	365.0	341.1	354.1
Centel	179.2	196.4	185.7	186.1	194.4	216.9	187.8	195.8
Subtotal	4,098.3	4,419.4	4,134.6	4,089.8	4,056.3	3,825.4	4,258.9	4,026.5
Alltel	157.2	184.3	163.9	180.7	200.7	207.5	165.8	188.2
Cincinnati Bell	79.7	91.2	76.4	144.7	121.4	108.0	85.5	112.6
Puerto Rico**	162.0	220.0	230.0	190.0	160.0	160.0	382.0	185.0
Rochester	83.0	82.6	79.7	86.7	87.1	91.2	82.8	86.2
Century	43.0	54.3	53.0	56.7	49.7	53.0	48.7	53.1
Subtotal	534.9	612.4	603.0	658.8	618.9	619.7	573.7	625.1
TDS	29.8	37.5	43.8	51.3	65.9	50.0	33.7	52.8
Lincoln	27.6	27.4	24.3	35.1	31.2	24.5	27.5	28.8
Pacific Telecom	45.9	40.7	40.3	50.9	57.5	63.7	43.3	53.1
C-TEC	24.9	27.6	27.6	36.1	34.2	35.1	26.3	33.3
Anchorage	33.4	25.9	8.0	9.8	16.8	16.8	29.7	12.9
Subtotal	161.6	159.1	144.0	183.2	205.6	190.1	160.4	180.7
[illegible]								
Regionals	14,339.3	13,968.0	13,829.0	14,157.7	14,468.2	14,279.2	14,153.7	14,183.9
[illegible]								
Other Independents	720.2	778.6	731.6	739.8	732.1	695.3	749.4	724.7
[illegible]								

Source: Telephony/Market Research
*estimated 1989-91
**estimated 1991

Spending *continued*

optical fiber as the transmission medium of choice in an ever-growing number of applications.

California Gold

How important are the digital CO-based services that seem to hold so much promise for the LECs?

"We have two very dense LATAs in the Los Angeles and San Francisco areas with a large concentration of small businesses and technologically advanced families," says Robert A. Steuernagel, executive director of marketing intelligence and assessment for Pacific Bell. "We could possibly be a $2-billion market for information services and enhanced services by the mid-1990s."

Services involved are both the old—Centrex—and the new—videotex—and a dozen or more in between, including packet switching, data transport, CO-based local and wide area networks, voice mail, voice messaging, call waiting, call forwarding, phone answering, intercom, call transfer, three-way calling and speed calling.

These services bring in extra money for the LECs—big money, judging by Steuernagel's statement. They are dependent on digital or stored program-controlled COs and on substantial ancillary equipment installations in the cases of more complicated services. Little wonder a major objective of the LECs is to complete digitalization of their networks as quickly as possible. Pacific Bell says it is working "to replace every electromechanical switch in the

continued on page 36

Fiber Optic Leaders (June 1989)

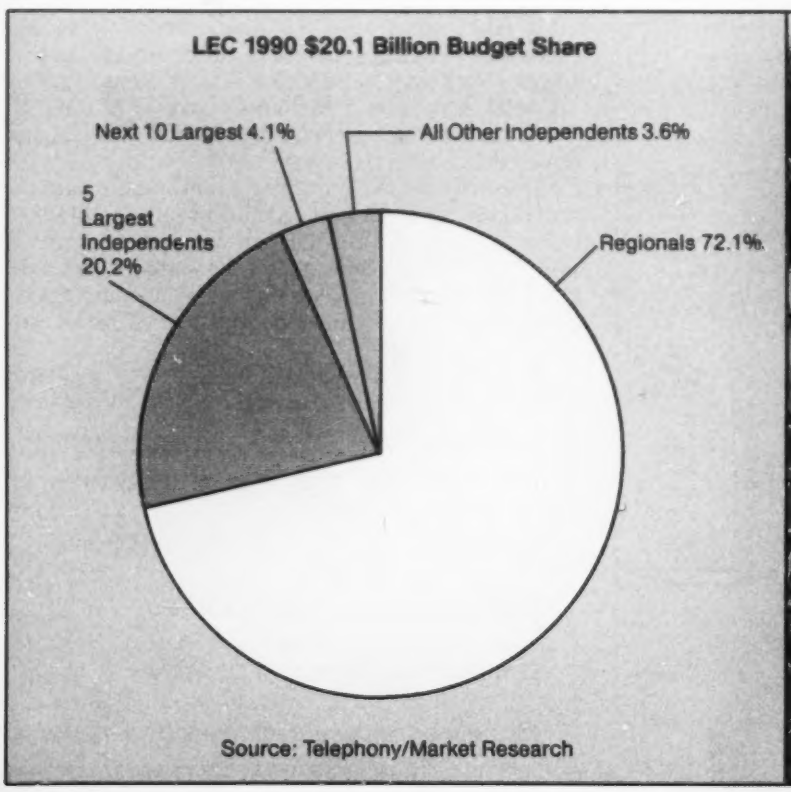
	Fiber Miles	Sheath Miles
BellSouth	386,452	17,826
Bell Atlantic	316,161	10,466
Nynex*	305,000	7,800
SW Bell	237,794	8,100
GTE	227,971*	N/A
Ameritech	195,929	9,273
U S West	163,939	N/A
Pacific Telesis*	110,000	3,500
United	89,212	5,986
Contel	88,000	11,000
SNET	32,145	700
Cincinnati Bell	13,495	306
Centel	9,854	1,285
Alltel	7,584	799
Lincoln	4,268	638
Total	2,187,804	

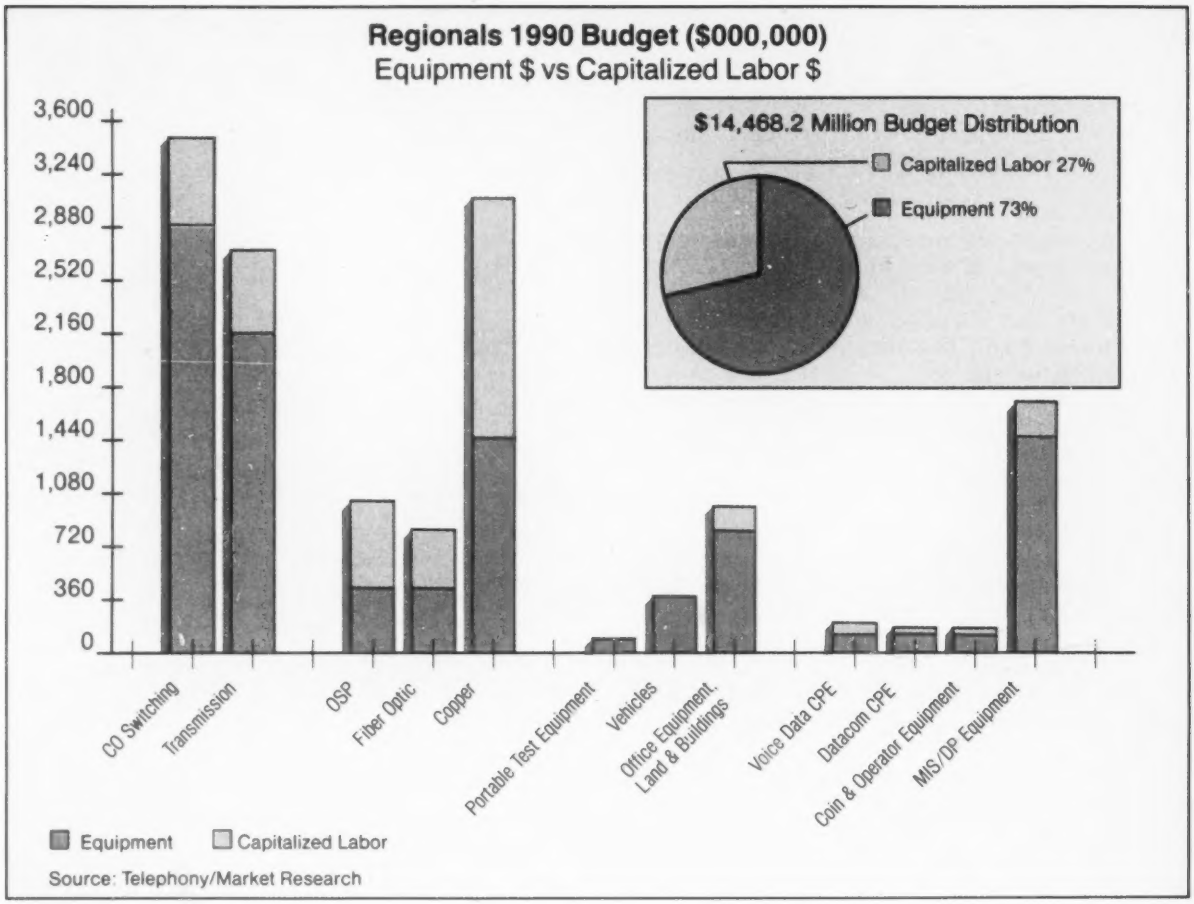
Source: Telephony/Market Research

*Estimated by Telephony

N/A: Not Available

*: Projected Year-End 1989

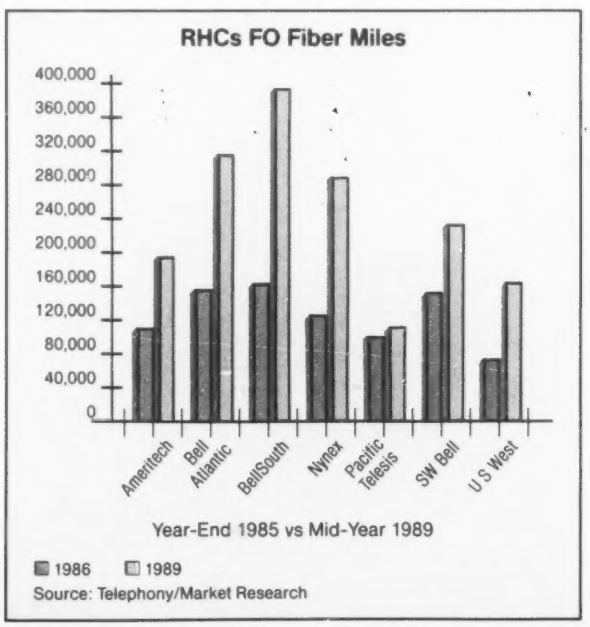




Spending *continued*

state by 1991," thus enhancing its opportunity to offer new services to all customers.

And Southern New England Telephone says it is spending $1 million per day to bring new technologies to its switched network.



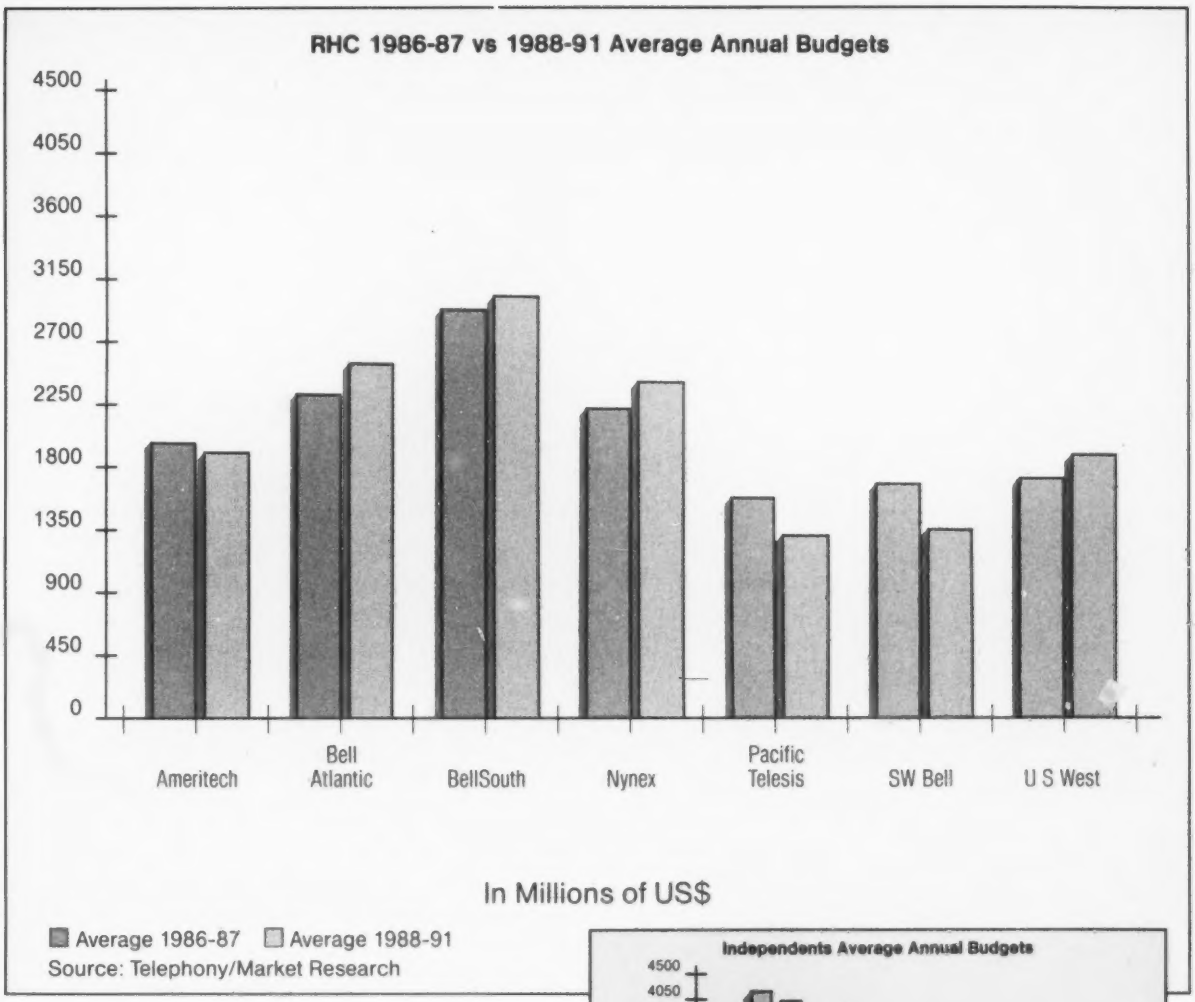
"By the end of 1990, we plan to have software-controlled switches deployed in 132 of our 140 central offices," says SNET Chairman Walter Monteith.

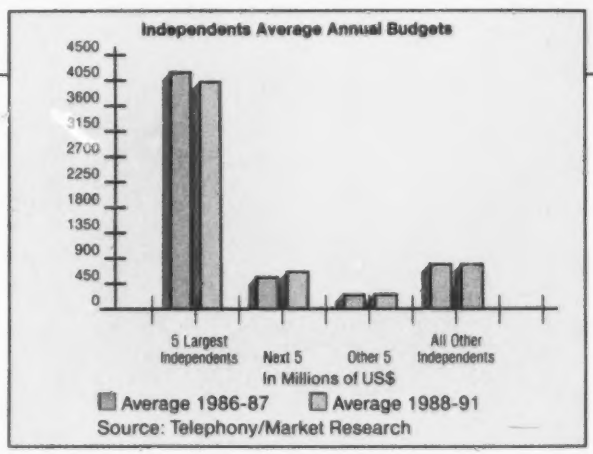
Contel also has ambitious plans, according to James L. Carroll, president of Contel's Telephone Operations Sector.

"The company will continue to leverage its extensive digital switching and transmission facilities to bring new capabilities to our customers," Carroll says. "Several locations have been slated for CLASS trials in 1990, and the company will continue a major effort to enable local communities to install enhanced 911 service."

At Ameritech new calling plans are on tap, says Ameritech Chairman William L. Weiss. "We plan to

Fiber, because of its high capacity and superior transmission quality, has come a long way in the past six years. It is clearly the medium of choice for new or replacement interoffice trunks.





introduce new calling plans that will better tailor our high-capacity digital services to customers' needs." he says. "New services such as the Ameritech Service Management system will enable businesses to better manage their communications networks." Ameritech companies also will begin offering a new network automatic call distributor to business customers, according to Weiss.

Goodbye, No. 5 Crossbar

A major milestone for Rochester Telephone Corp. in 1989 was the replacement of the company's last No. 5 crossbar CO switch with a 5ESS digital switch. The event "virtually completed the company's conversion to digital technology in its Rochester territory," says John Purcell, Rochester Tel's vice president-telephone group staff.

Another company that's nearly home as far as digitalization goes is Centel. By year-end Centel projects that 95% of its more than 1.5 million access lines will be digital, according to Sam Leftwich, president of Centel's telephone operating subsidiary.

Centel will offer custom local area signaling services by mid-1990 in Nevada, Illinois and Florida. And voice mail, already offered in all of the company's major markets, also will be offered in several smaller markets that Centel serves.

There are many other indications of the progress in the drive for full digitalization among the major Independents. Alltel, for example, will be 70% digital at the beginning of 1990 and plans to be 90% digital by 1994. Telephone & Data Systems at year-end 1990 will serve more than 80% of its customers with digital switches. Century Telephone Enterprises will have 73% of its switching network digital by the end of 1990 and 91% by 1994. And Commonwealth Telephone Co., a subsidiary of C-Tec Corp., will have its

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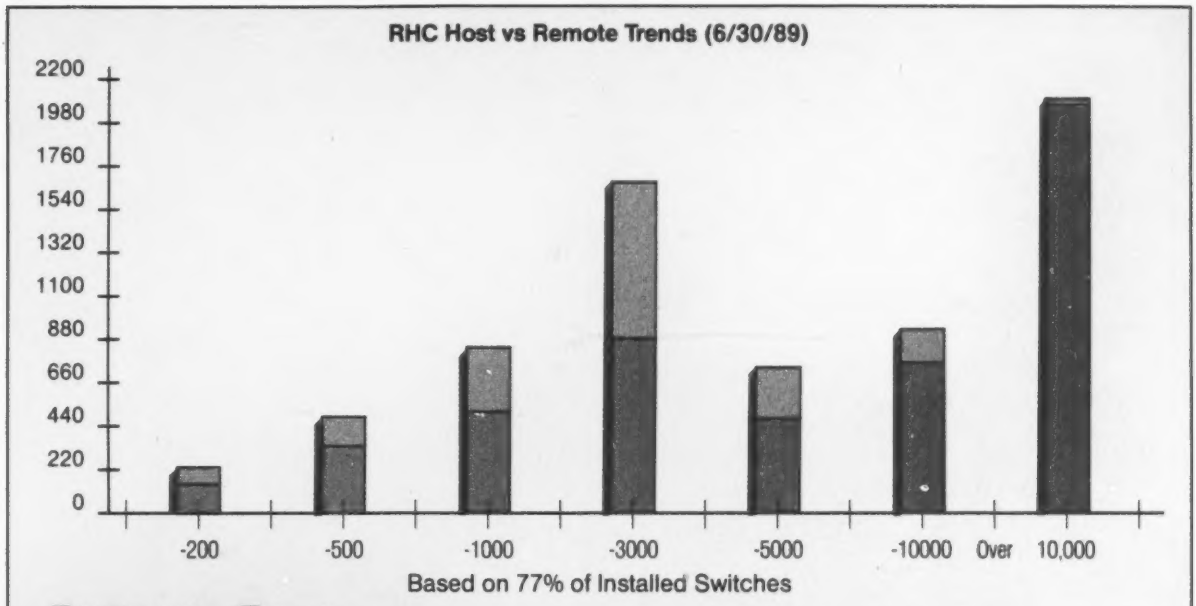

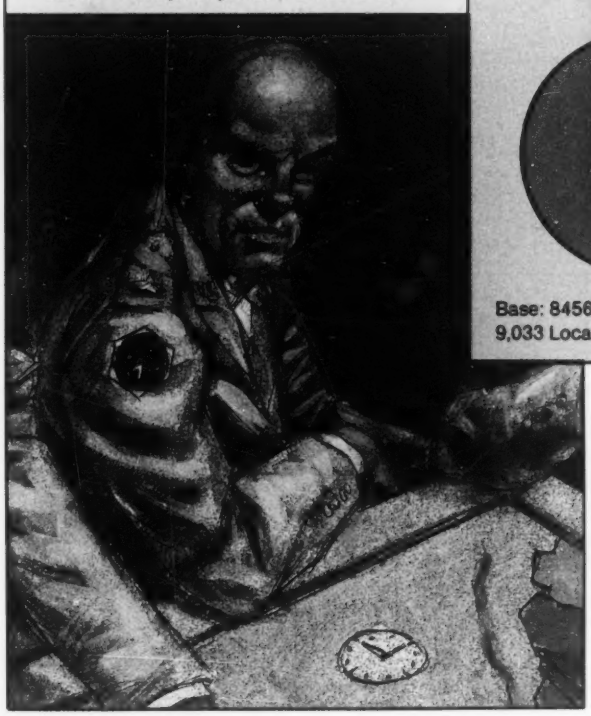

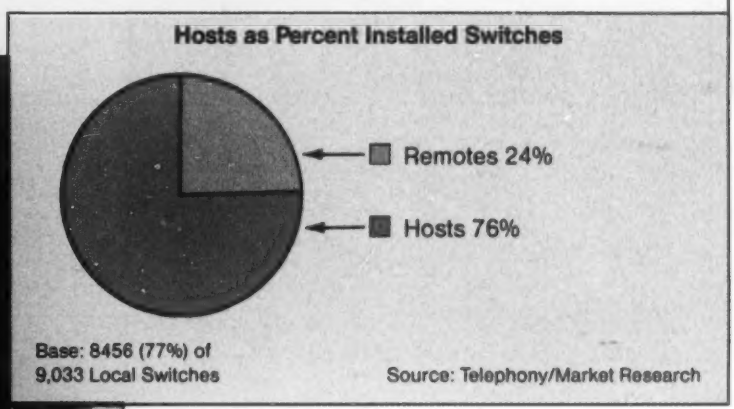

Spending *continued*
switching network totally converted to digital by 1996.

ISDN for the Masses

There's no doubt that the coming all-digital network will give a big boost to integrated services digital network deployment. But factors other than the gaps in digitalization are inhibiting widespread ISDN deployment. These factors include incompatibility among different vendors' switches and the absence of technical standards.

Despite obstacles, LECs are persistently pushing forward with ISDN. Ameritech (parent company of Illinois Bell, the first LEC to offer tariffed ISDN service) has plans under way for ISDN trials that will cross LATA boundaries and state lines. These trials will involve connection between local service ISDN and an IXC's network, which is another first.

All five of Ameritech's operating companies have been involved in ISDN trials. In addition, the companies "will forge ahead with signaling system 7 and intelligent network deployment plans," says Weiss. "Together they will provide a platform we will use to create and introduce new services more rapidly as we enter the 1990s."

Bell Atlantic's operating companies also have several ISDN trials going. But the company is not "aggressively selling" ISDN because, says Ray Albers, assistant vice president of technology planning, "we simply don't have compatibility across vendors." He's optimistic, however, that the Bell regional holding companies and Bellcore soon will have technical specifications for ISDN. He predicts Bell Atlantic will have its ISDN tariff ready by mid-year and be selling ISDN services in the second half of the year.

BellSouth's Southern Bell subsidiary expects 50

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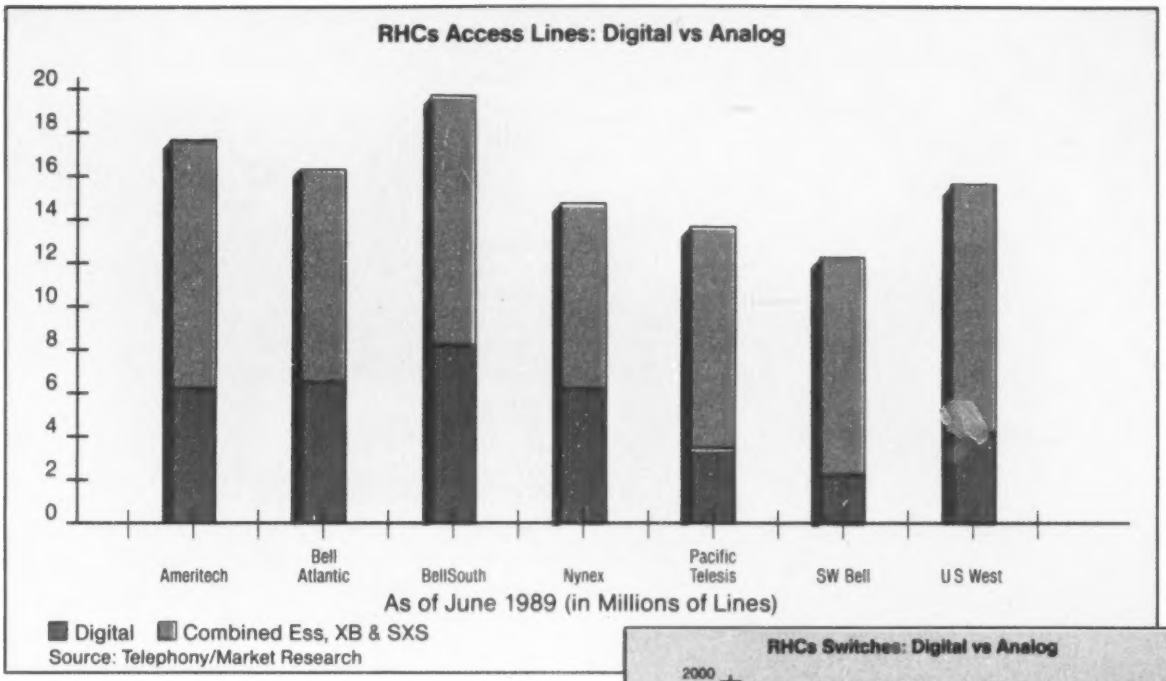

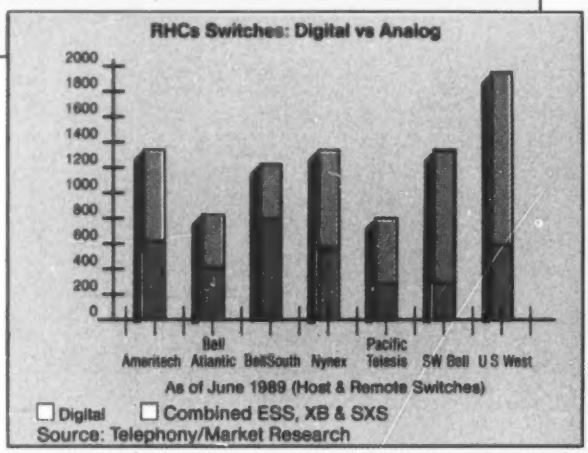

Spending *continued*

COs will be equipped with narrowband ISDN by the end of next year. Those offices were chosen by market research to determine where prospective ISDN users are located.

Southwestern Bell has six customers using ISDN commercially. Four of them must have been easy sales because they are customers who have a strong interest in the growth and success of ISDN: 3M Co.'s Electro-Telecommunications Group, Austin, Texas, with 3165 lines; AT&T Network Systems, St. Louis, with 2300 lines; Rockwell International, Dallas, with

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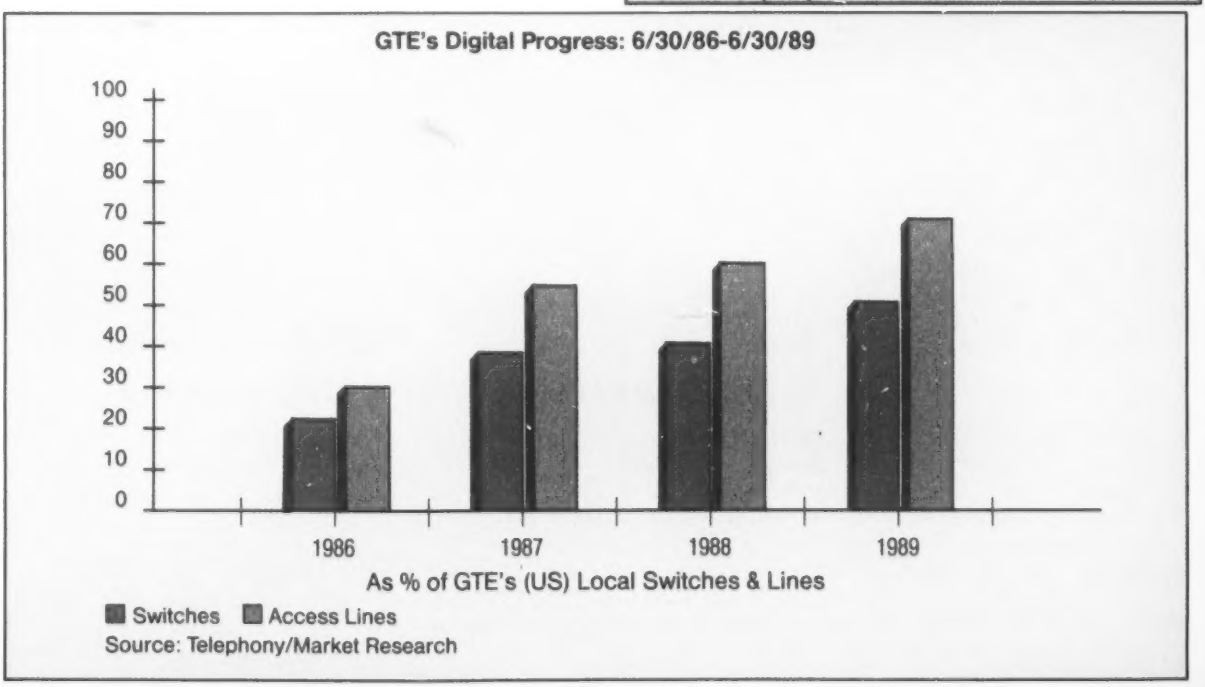


Spending *continued*

1200 lines; and AT&T Technologies' Oklahoma City Works, with 1000 lines.

Easy sale or not, the company does not "sell" ISDN, says Southwestern Bell's ISDN Project Manager Bill Evans. Instead, it looks at a company's needs and determines whether it can benefit from ISDN's functionality.

The major Independents also are moving forward with ISDN. For example, Rochester Tel is working with customers to determine how ISDN can help them, particularly in data transmission. Because of its virtually 100% digital network, Rochester Tel is well-positioned to make ISDN a reality for anyone who wants it.

Alltel will team with Rochester Tel, Nynex and MCI to link New York City, Rochester and Jamestown, N.Y., in an ISDN trial using SS7 technology.

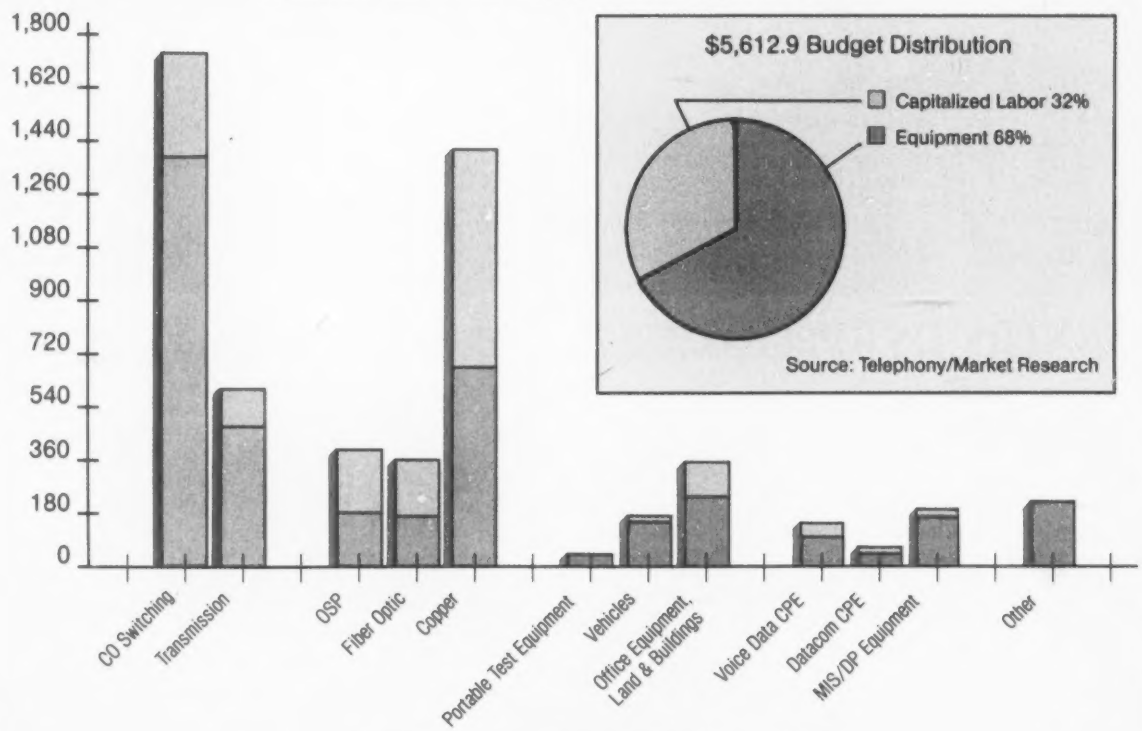
And Contel has signed a contract for ISDN service with a major food manufacturer and has made ISDN proposals to several financial institutions.

The Fiber Boom

Bell Atlantic is one RHC that is big on fiber. "We are installing fiber in our network at the rate of 100,000

continued on page 53

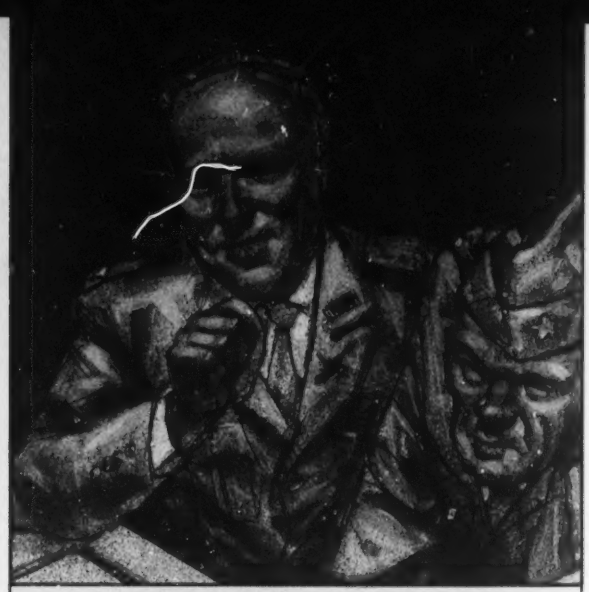
Independent 1990 Equipment Budget $000,000

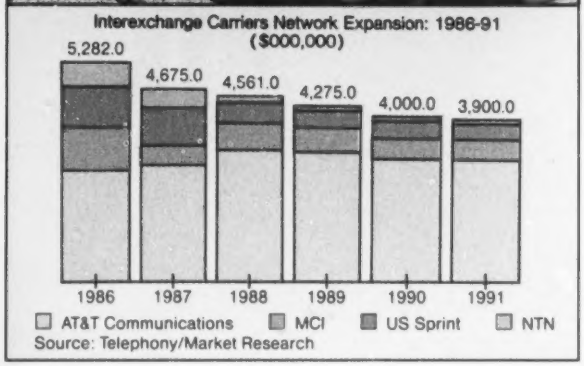


Equipment $ vs Capitalized Labor $

Equipment Capitalized Labor

Source: Telephony/Market Research





Spending *continued*

miles a year," a company spokesman says. "Today, most of that fiber runs to our distribution hubs; by 1992 or so, we believe fiber will replace copper as the connection of choice to new homes and offices. And we envision an all-fiber network, with coherent laser optical switches and end-to-end digital capability early in the next century."

That last vision seems like a long way off, but in reality the next century is only 10 years away. Whether or not Bell Atlantic's vision comes true, there is no doubt that LECs and RHCs are counting on fiber to provide the kind of sophisticated communications that new technology makes possible.

Fiber, because of its high capacity and superior transmission quality, has come a long way in the past six years. It is clearly the medium of choice for new or replacement interoffice trunks. And it is tentatively fingering out toward the ultimate customer in a few dozen fiber-to-the-home trials. Yet LECs still are spending nearly four times as much on copper as they are on fiber, so fiber clearly has not yet come into its own. How quickly it does so depends on how quickly the intelligent network matures and what kind of services LECs will be permitted to provide their customers.

One thing is obvious, though, when comparing spending plans with the achievement goals of the IXCs and LECs this year: Although they will be spending just about the same amount as they did last year, they fully expect to get a lot more for their money. And from the sound of things, they probably will. T

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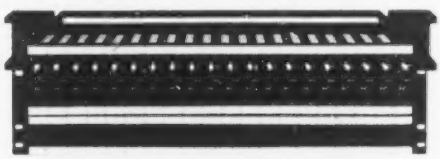

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